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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,816	11/17/2003	Kunihiro Tashiro	1117.68737	2176

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EXAMINER

CHIEN, LUCY P

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/714,816	Applicant(s) TASHIRO ET AL.	
	Examiner Lucy P. Chien	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/24/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Species II in the reply filed on 1/25/2006 is acknowledged. Restriction was found unnecessary. Restriction withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al (US 6781759) in view of Yamahara (US 6137556).

Regarding Claim 11-13,

Wakita et al discloses (Fig. 18e) a reflecting layer (50) for reflecting incident light; a liquid crystal layer (Fig. 17)(40) provided on said reflecting layer (38), a retardation plate (Column 13, rows 1-5) and a polarizing plate provided on a front surface of said liquid crystal layer(40),

wherein said reflecting layer has projections (shown in Fig. 18e) and depressions formed on a surface thereof, an average tilt angle of the projections and depressions being a value of 4°-11°. It would have been obvious to one ordinary skill in the art at the time of the invention was made to have the projections and depressions being a value of not less than 4° nor greater than 6°, and not less than 7° nor greater than 9°, and not less than 10° nor greater than 15°, since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Wakita et al does not disclose wherein the alignment of liquid crystal molecules is vertical and said retardation plate has a negative refractive index anisotropy in a vertical direction to a surface thereof, a ratio between a retardation R_f thereof and a retardation R_{lc} of said liquid crystal layer, R_f/R_{lc} , being a value of not less than 0.6 nor greater than 0.9.

Yamahara discloses using a vertical liquid crystal molecule. Therefore, the linearly polarized rays 35, 36 and 37, upon passing through the liquid crystal molecules 32 in different directions, produce ordinary and extraordinary rays. (Column 2, rows 24-42). Yamahara also discloses said retardation plate has a negative refractive index anisotropy in a vertical direction to a surface thereof, a ratio between a retardation R_f thereof and a retardation R_{lc} of said liquid crystal layer. The ratios are set within such a range that viewing angle dependency does not cause coloration on the liquid crystal screen. (Column 37, rows 15-25) (Column 15, rows 42-60)

It would have been obvious to one of ordinary skilled in the art to modify Wakita et al's display to include Yamahara's ratios of R_f/R_{lc} motivated by the desire to avoid coloration on the liquid crystal screen (Column 37, rows 15-25).

Regarding Claim 14.

In addition to Wakita et al and Yamahara as disclosed above, Yamahara discloses wherein where refractive indexes in an x direction, a y direction, and a z direction of said retardation plate are n_x , n_y , and n_z respectively, and a N_z coefficient

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is defined such that $N_z = (n_x - n_z)/(n_x - n_y)$, the N_z coefficient of said retardation plate is 1 or less (Column 10, rows 13-18).

Regarding Claim 15.

In addition to Wakita et al and Yamahara as disclosed above, Yamahara discloses wherein said retardation plate is made by layering a plurality of uniaxially stretched films which are arranged in layers such that slow axes of the respective uniaxially stretched films are substantially orthogonal (Column 10, rows 1-18).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al (US 6781759) and of Yamahara (US 6137556) in view of Shimada et al (US 6226064).

Wakita et al and Yamahara does not disclose liquid crystal molecule of said liquid crystal layer has a negative dielectric constant anisotropy.

Shimada et al discloses wherein the liquid crystal molecule of said liquid crystal layer has a negative dielectric constant anisotropy so improved contrast can be achieved. (Column 3, row 45-65).

It would have been obvious to one of ordinary skilled in the art to modify Wakita et al and Yamahara's display to include Shimada et al's negative dielectric constant anisotropy liquid crystal motivated by the desire to improve contrast (Column 3, row 45-65).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy P. Chien whose telephone number is 571-272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucy Chien
Examiner
Art Unit 2871
LC


ANDREW SCHECHTER
PRIMARY EXAMINER